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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/032,450	01/02/2002	Hideyuki Nasu	214869US8	6573

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EXAMINER

VY, HUNG T

ART UNIT PAPER NUMBER

2828

DATE MAILED: 02/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/032,450

Applicant(s)

NASU ET AL.

Examiner

Hung T Vy

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 January 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-51 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-51 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

  
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**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6-7. 6) ☐ Other:

### **DETAILED ACTION**

1. In response to the communications dated 01/02/2002, claims 1-51 are pending in this application.

### **Acknowledges**

2. Receipt is acknowledged of the following items from the Applicant.

Information Disclosure Statement (IDS) filed on 06/17/2002 and made of record as Paper No. 6 and filed on 11/18/2002 and made of record as Paper No. 7.

### **Foreign Priority**

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Acknowledgment is made of applicant's claim for foreign priority based on applications filed in Japan on 06/07/2001 and 09/28/2001.

### **Drawings**

4. The drawings are objected to for the following reasons.

Figures 20-21 are not labeled "Prior Art". The Legend is necessary in order to clarify what applicant's invention is (see MPEP § 37 CFR1.83(a)).

### **Specification**

5. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### **Claim Rejections - 35 USC § 102**

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-17, 19, 21-29, 31-51 are rejected under 35 U. S. C. § 102 (b) as being anticipated by Sato, U.S. patent No. 5,867,513.

Regarding claims 1-17, 19, 21- 29, and 31- 47, Sato discloses an optical module or optical transmitter or A WDM transmitting comprising: a light-emitting device configured to output a laser beam (1); a first temperature sensing unit (9) disposed

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adjacent to the light-emitting device (1) so as to sense a temperature of said light-emitting device; an optical filter (30) positioned to receive and filter (30) at least a component of the laser beam; a wavelength regulating unit (68 and 81) configured to regulate the wavelength of the laser beam that is output from said light-emitting device based on said signal from the wavelength monitor device ; a second temperature-sensing unit (36) disposed adjacent to said optical filter (29) so as to sense a temperature of said optical filter; and a temperature control unit (80 and 81) configured to regulate the temperature in at least one of said light-emitting device (1) and said wavelength monitor device, wherein at least a portion of said wavelength monitor device being in contact with said temperature control unit by second carrier (35) (See fig 5 and Fig. 10, column 4, line 25-28 or column 3, line 47-50 or column 10, line 21-31). The temperature control (80 and 81) unit is configured to separately regulate the temperature of the light-emitting device (1) and the temperature of the optical filter (30) (see column 3, line 21-25 and column 4, line 5-20). The optical module, wherein: wavelength monitor device comprises a beam splitter (18 or 29)(fig, 10) configured to divide said laser beam into two laser beam components, and two photo detectors (24, 32) each positioned to receive respective of the two laser beam components and each configured to photo electrically transform each component into respective electric signals which form said signal that is output form said wavelength monitor device, wherein said optical filter (30) is disposed between at least one of said two photo detectors and the beam splitter (18 or 29)( see fig 10). The beam splitter is a prism (see fig 10). The optical filter is a Fabry-perot etalon filter (See column 10, line 32-45).

Wavelength regulating unit is adapted to lock the wavelength of the laser beam (1) at a predetermined wavelength based on the signal from said wavelength monitor device after the wavelength monitor device regulates the wavelength of the laser beam (1) to fall within a wavelength range based on a first temperature signal that is produced from said first temperature-sensing unit (9), and the second temperature-sensing unit (36) is configured to produce a second temperature signal that is used by said wavelength regulating unit to correct any deviation in the locked wavelength associated with a temperature characteristic of said optical filter (See column 10, line 21-31 or column 2, line 21-33). Further, a butterfly package having 14 pins, said common terminal being connected to one of 14 pins (See fig. 4). A surface of optical filter and second temperature sensing (36) are mounted onto upper side of a second upper substrate (73) (See column 9, line 20-41). Wavelength monitor device include a filter holder formed of a heat conductive material; optical filter is fixedly mounted to filter holder (73) and second temperature-sensing unit (36) is mounted adjacent to said optical filter on said filter holder (73) (See column 9, line 20-41 and Fig 5). A package (44) that houses light-emitting device, wavelength monitor device and wavelength regulating unit, wherein second temperature-sensing unit (36) is disposed between said optical filter and one side of the package (See fig 5 and Fig 10). The second section of filter integrally formed with said first mount section and adapted to position second temperature-sensing (36) unit at an intermediate position between a bottom face and a top face of optical filter on carrier (35) (see fig 5). The second mount section of filter holder and second temperature-sensing unit are soldered on carrier (35) (See fig 5). Control unit

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comprises (68,80,81) two transformers configured to transform respective currents from first two photo detectors (24 and 32) into corresponding voltage signals, it is inherent that control unit has a comparator configured to compare said corresponding voltage signals with each other and output at least one of a difference and a ratio between said corresponding voltage signal, and a current generator that is configured to output a temperature control current for the temperature control unit so as to regulate the temperature in the at least one of the light-emitting device and the wavelength monitoring device based on the control signal from said comparator (see column 3. line 18-43). Optical filter has a predetermined thermistor resistance (See column 10, line 26); and control unit is configured to vary a photo diode current ratio of current output from the two photo detectors via a linear relationship with said thermistor resistance so as to compensate for temperature dependent wavelength drift of said laser beam (See column 10, line 21-31)

With respect to claims 48-51, the methods for stabilizing a wavelength of a laser beam are considered as product by process steps.

### **Claim Rejections - 35 U.S.C. § 103**

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 18,20, and 30 are rejected under 35 U.S.C. 103 (a) as being unpatentable over sato, U.S. patent No. 5,867,513

Regarding claim 18 and, 20, Sato discloses the claimed invention except for filter holder has plated. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have good connected, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

Regarding claim 30, Sato discloses the claimed invention except for an analog/digital converter that converts the electric signal outputted form two photo detectors (9 and 36) into digital signals. Sato teaches that it is known to automatic power control, automatic temperature control circuit as set forth in column 1, line 45-61. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have analog/digital converter, as taught by Sato in order to have automatic power control, automatic temperature control circuit.

### **Citation of Pertinent References**

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.



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The patent to Tei et al. disclose Laser Light Source Apparatus, U.S. Patent No. 6,122,301.

The patent to Broutin et al. disclose Control System for Wavelength Stabilization of a Laser Source, U.S. Patent No. 6,198,757.

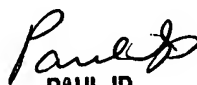
The patent to Dils et al. disclose Method and Apparatus for Determining Temperature in a Blackbody Radiation Sensing System, U.S. Patent No. 4,845,647.

### Conclusion

9. When responding to the office action, Applicants are advised to provide the examiner with the line numbers and page numbers in the application and/or references cited to assist the examiner to locate the appropriate paragraphs.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung VY whose telephone number is (703) 605-0759. The examiner can normally be reached on Monday-Friday 8:30 am - 5:30pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul IP can be reached on (703) 308-3098. The fax numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

  
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January 21, 2003